Final results

EIT Health
RIS Innovation Call 2020

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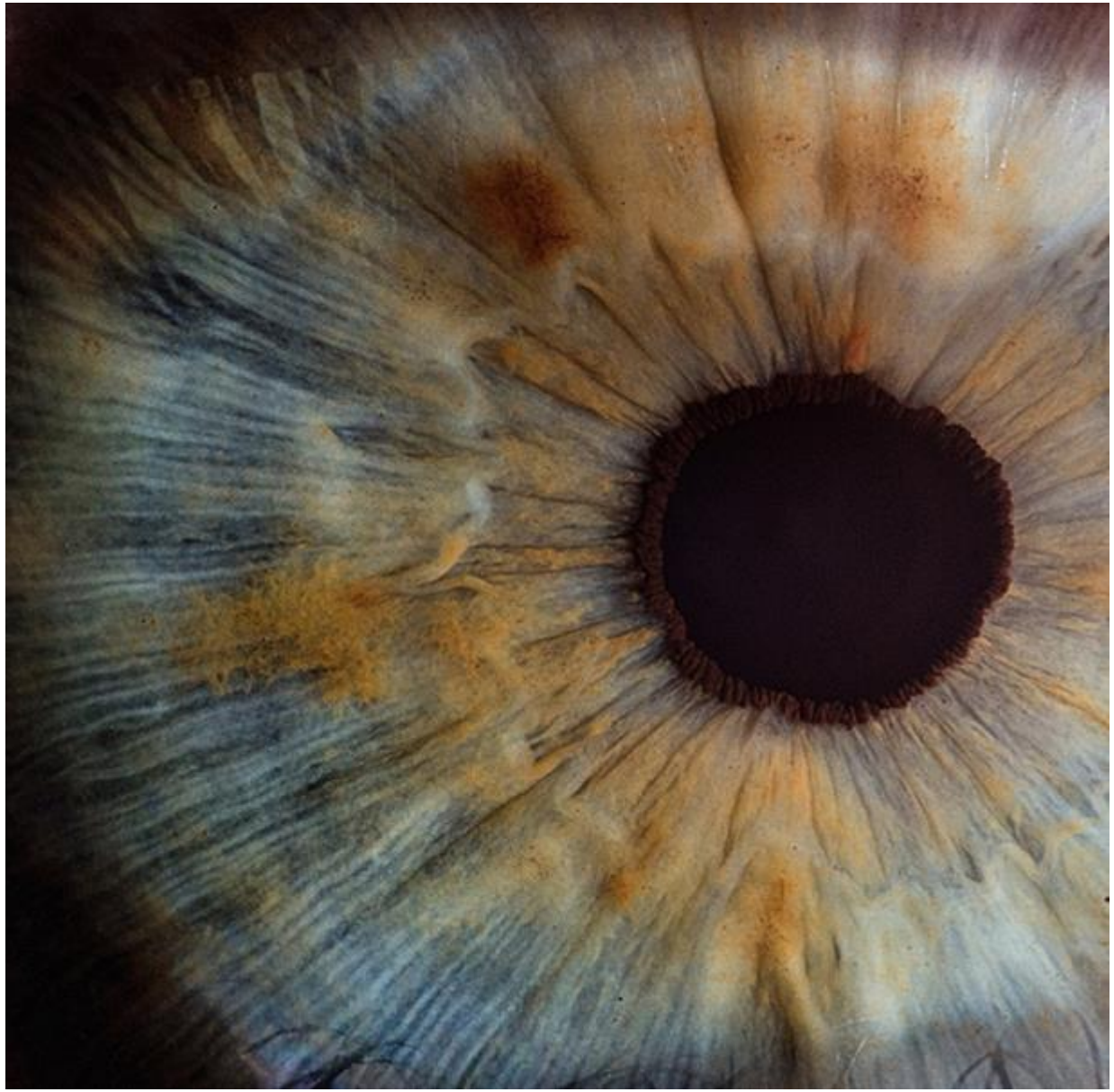
What is the EIT Health RIS Innovation Call?



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The EIT Health RIS Innovation Call is very useful for us too because of the opportunity of being engaged with the EIT Health network and its activities (workshops, partner meetings), being part of a research consortium, developing valuable solutions for the healthcare market and enjoying the benefits of innovation."

Simona Brezar,
Member of HomeCare 2020, a selected project in EIT Health RIS Innovation Call 2019

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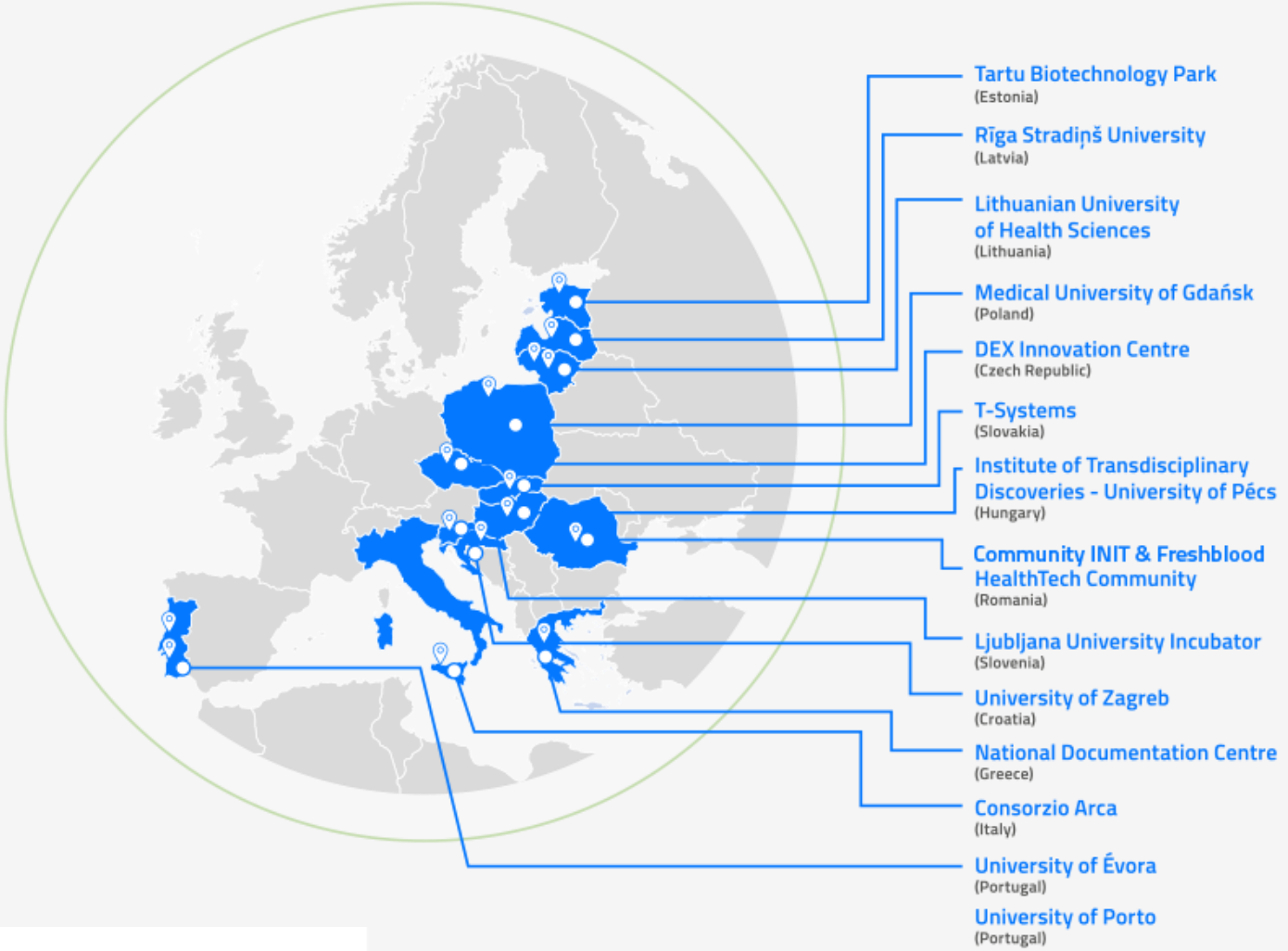
EIT Health RIS Innovation Call 2020

EIT Health RIS Innovation Call is a unique programme to support development of the local innovative healthcare projects that are located in more progressing European regions*.

The Call aims at funding high-quality, strong, balanced projects, targeting six EIT Health Focus Areas to be developed by local actors including both academic and non-academic partners in collaboration with EIT Health Hubs.

The goal is to push local innovation projects to the maturity level, which meets the application conditions of the EIT Health Business Plan Innovation Calls.

2020 is a second edition.



* The term *„progressing"* refers to the innovation capacity defined within the European Innovation Scoreboard. The regions are included in the EIT Health Regional Innovation Scheme.

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EIT Health RIS Innovation Call 2020 in Numbers

15 selected projects

47 evalauators

82 proposals

74 eligible proposals

18.3% Programme Success Rate

It's calculated as number of supported projects / number of submitted proposals

546% programme attractiveness

It's calculated as applicants/selected applicants, winners; it's an EIT Health KPI (ActOutcome1)

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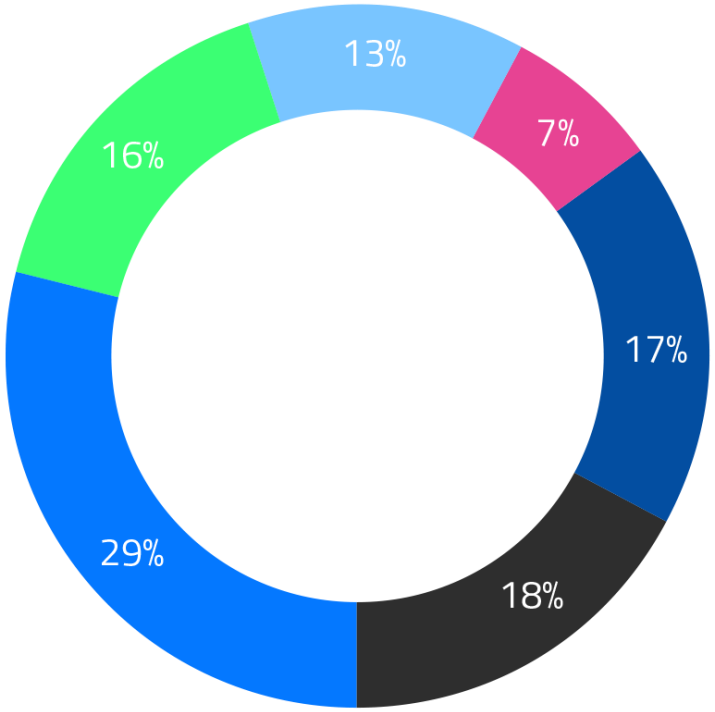
Applications by general topics



- Employer leadership in improving health outcomes in the workplace 7%
- Creating the enabling environment for healthcare 13%
- Bringing care home 16%
- Harnessing the power of real world data (RWD) 17%
- Fostering healthy lives by introdusing behavioural change 18%
- Towards health continuum care paths 29%

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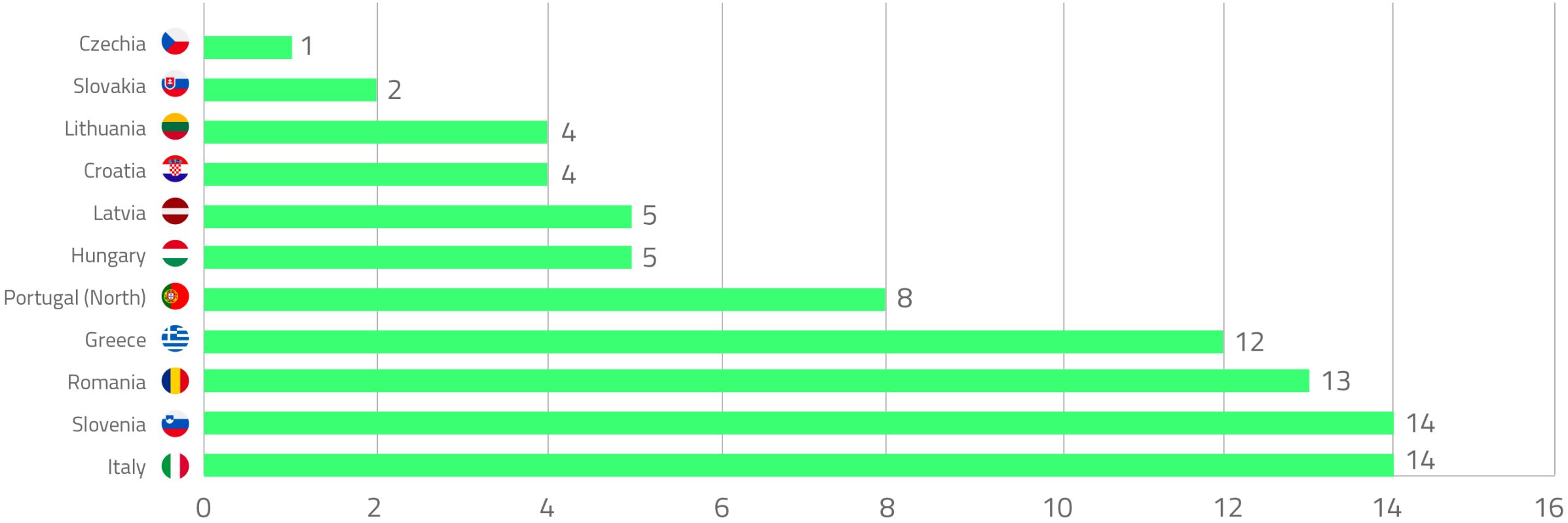
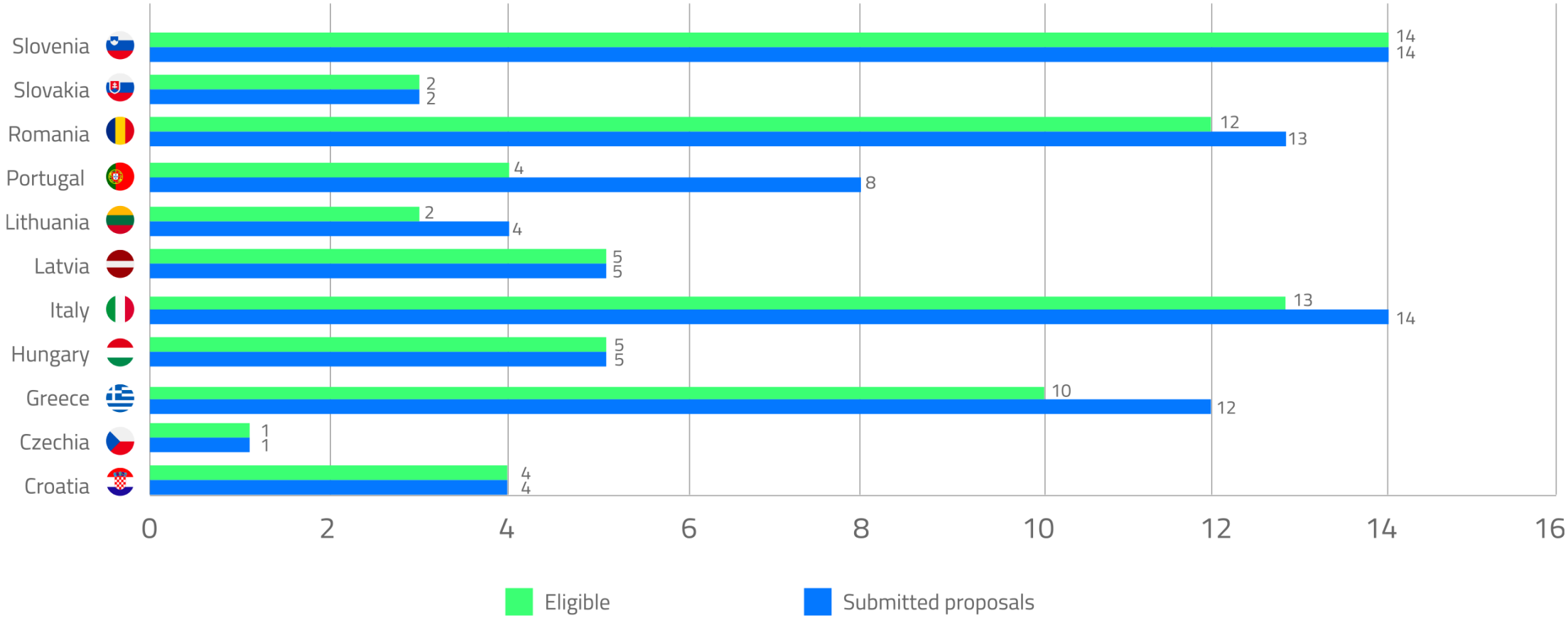
Submitted proposals / EIT Health Hubs

Total number of proposals: 82



Eligible / Submitted proposals



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What is the Innovation Maturity Level (IML) of the proposals?

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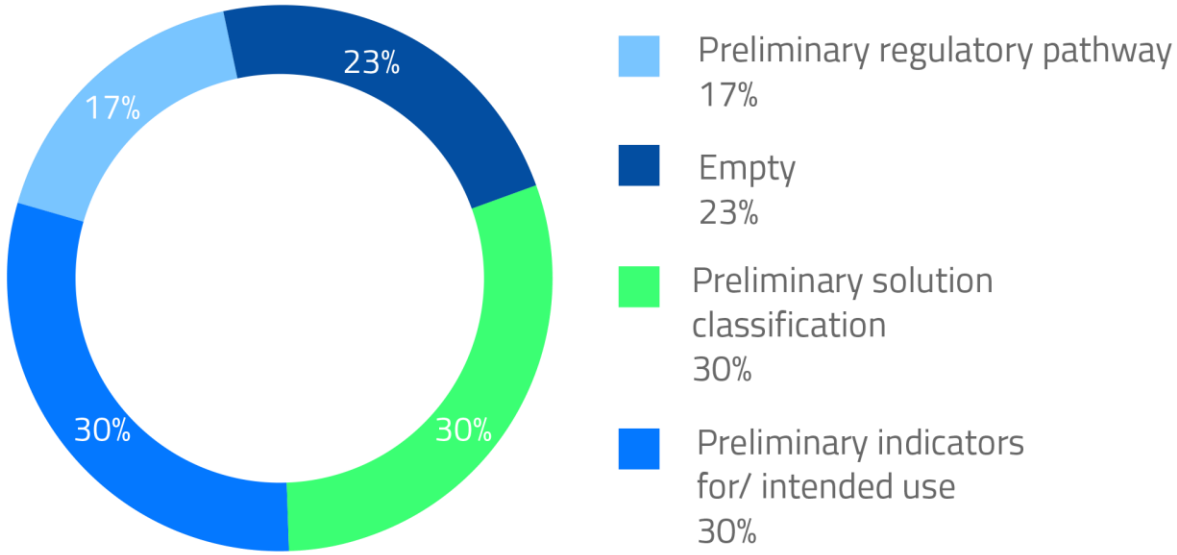
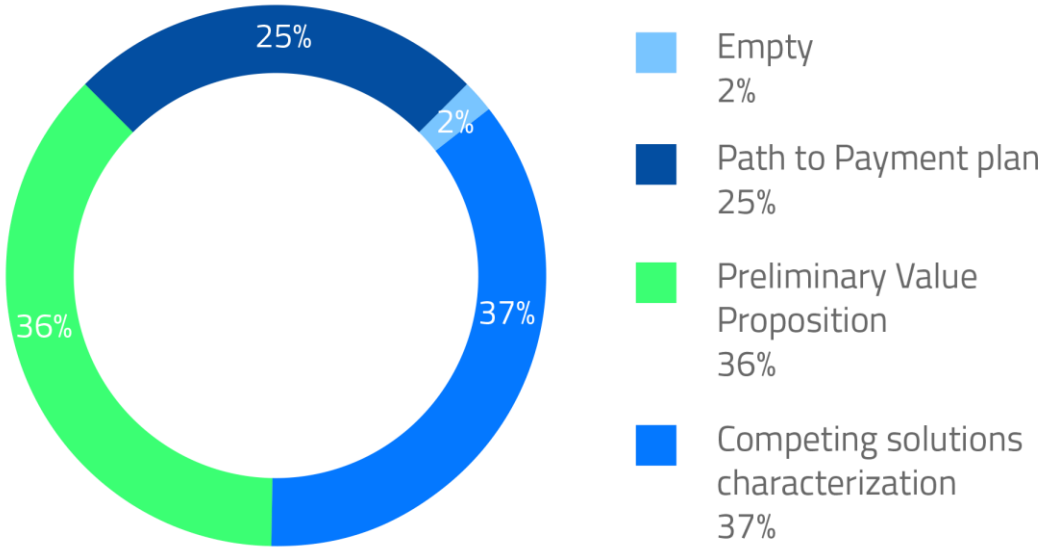
IML 3 – Regulatory / Approvals



IML 3 – Technology



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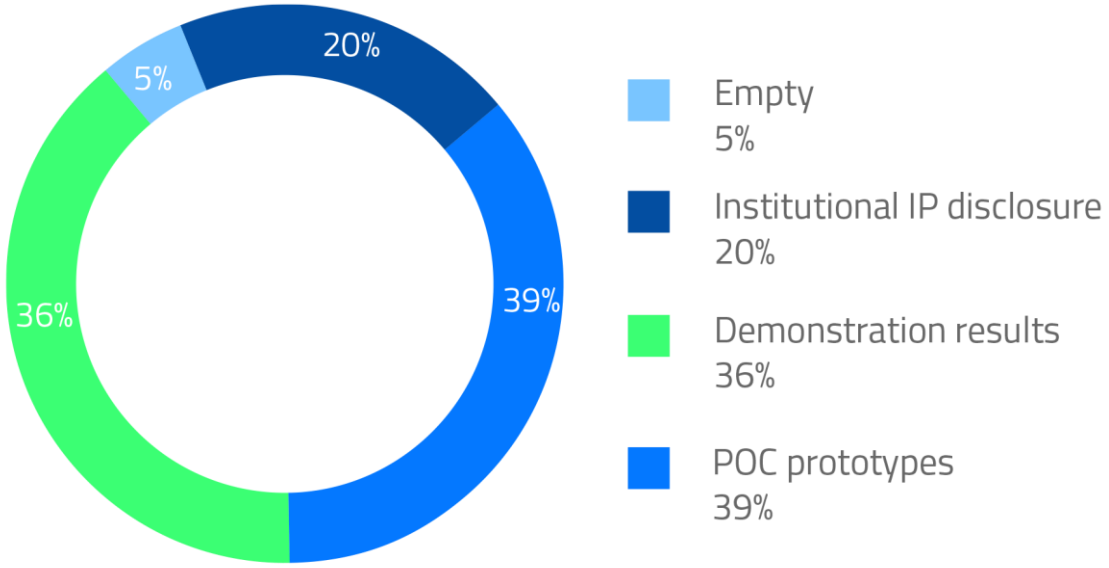
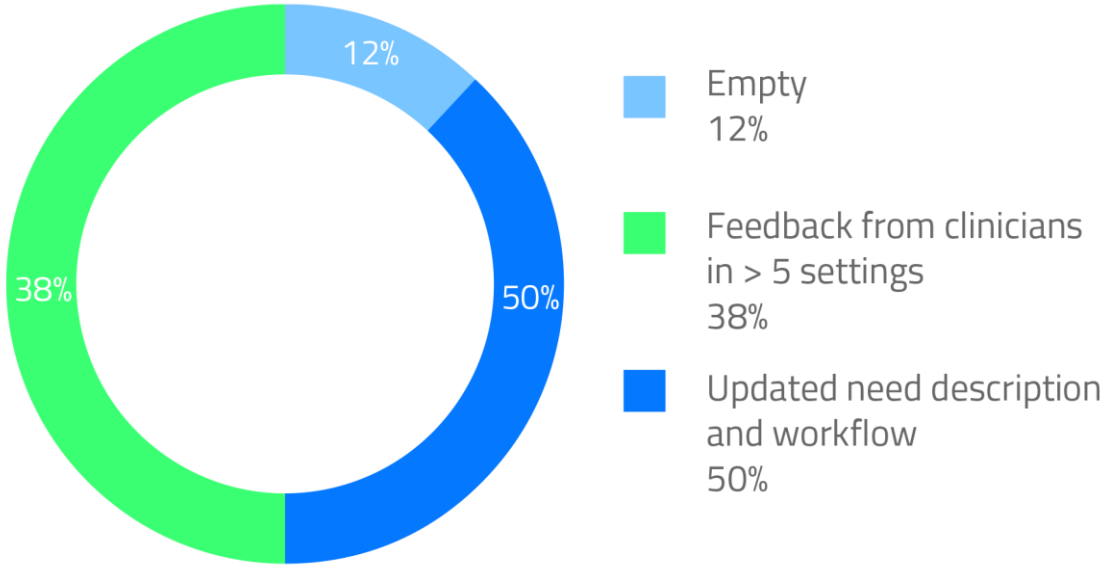
IML 3 – Market / Business



IML 3 – Clinical



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Top 15 projects

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In healthcare innovation researchers cannot be successful on their own. They need local and international partners to work with, mentors who will support them at various stages of research, other start-ups to learn from. They need experts and clinics to validate their solutions. For EIT Health, it is important to provide these researchers with the necessary competencies, tools and network.

Mónika Tóth,
EIT Health InnoStars RIS Program Manager

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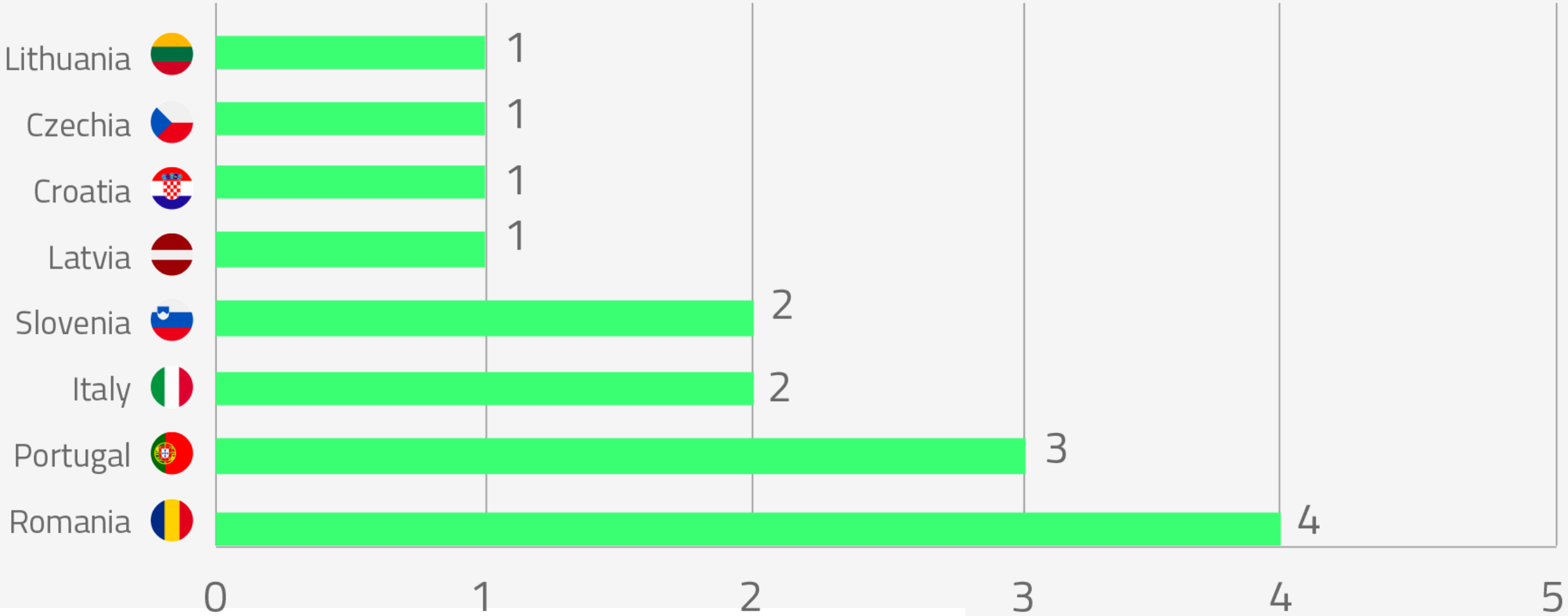
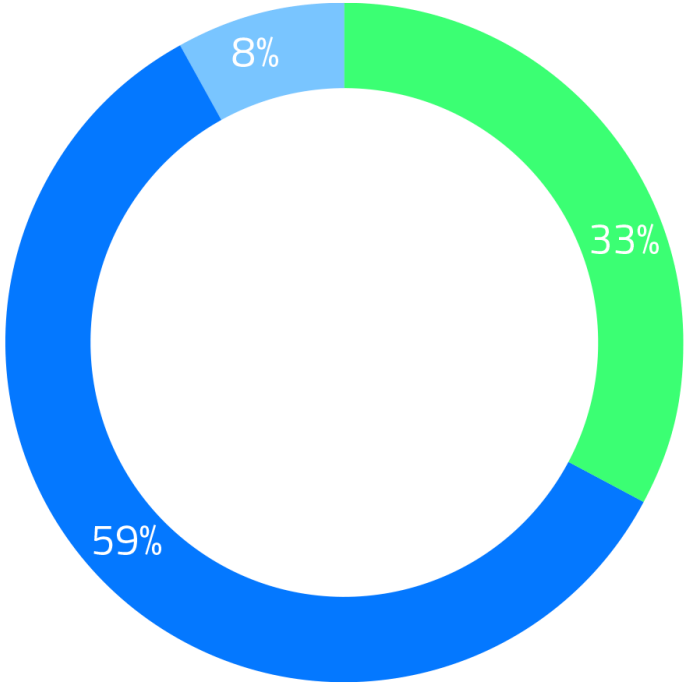
Top 15 proposals are from 8 countries



Top three fields of innovations



- Wearable device 8%
- New solution 33%
- Big Data / Cloud / Platform / Mobile App 59%

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EIT Health Hubs involved in the granted projects

TARTU BIOTECHNOLOGY PARK
integrated expertise

RĪGA STRADIŅŠ UNIVERSITY

LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

innovlab
startup centre of
powered by hub:raum

LJUBLJANSKI UNIVERZITETNI INKUBATOR

Sveučilište u Zagrebu
University of Zagreb

UNIVERSIDADE DE ÉVORA

U.PORTO

FRESHBLOOD

iTD
Institute of Transdisciplinary Discoveries

ar(a)

DEX
innovation centre

EKT
ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΤΕΚΜΗΡΙΩΣΗΣ
NATIONAL DOCUMENTATION CENTRE

MEDICAL UNIVERSITY OF GDAŃSK

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Top 15 selected projects

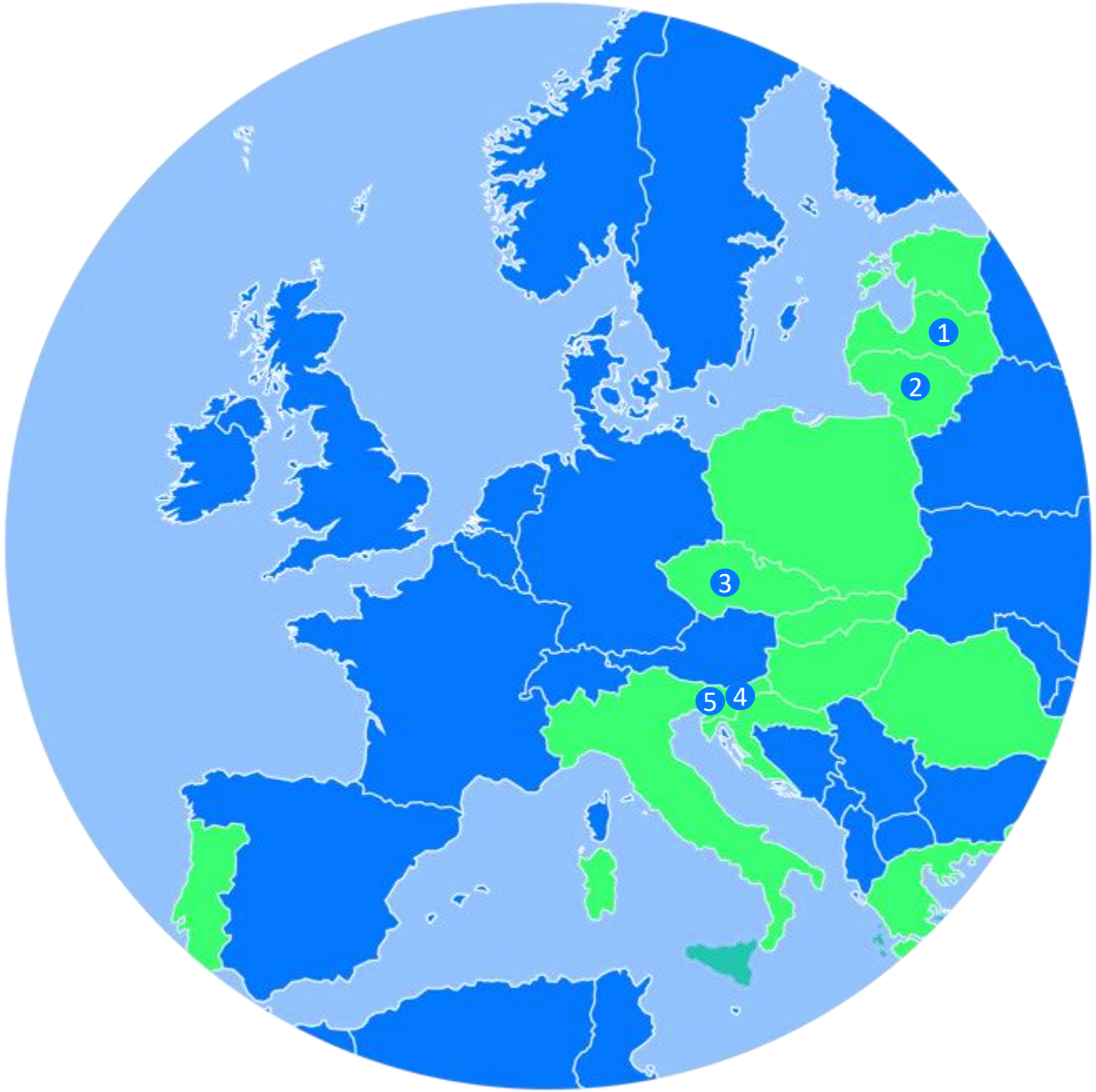
1. LATVIA
AI driven IP intelligence engine for early stage drug discovery

2. LITHUANIA
Patches for psoriasis treatment

3. CZECHIA
HepaMATRIX - Active 3D cell culture system for primary hepatocytes

4-5. SLOVENIA
Strengthening intergenerational playing cards

Remote therapy management in chronic heart failure patients



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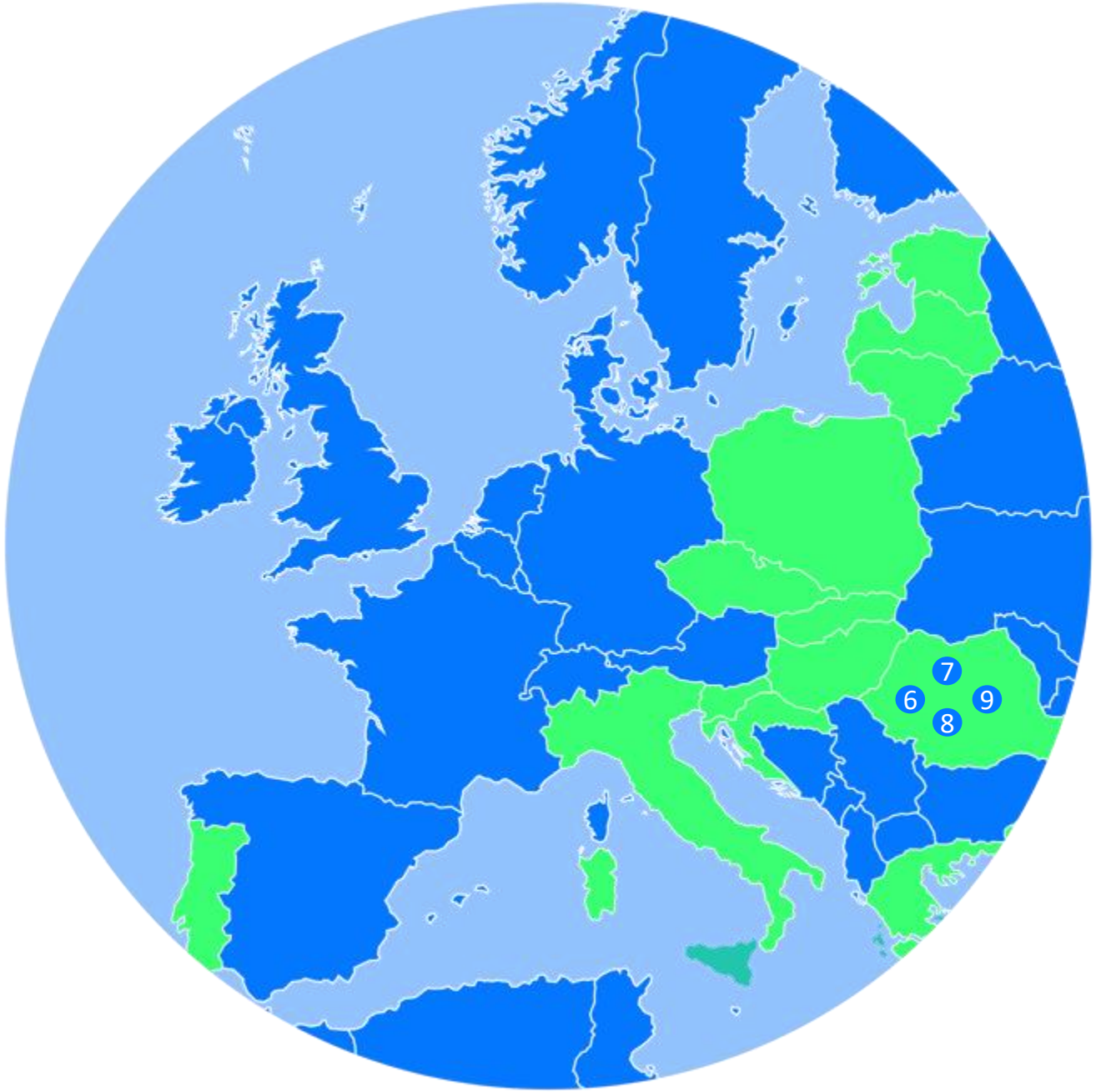
6-7-8-9. ROMANIA

Diagnosis and follow-up system based on artificial intelligence algorithms and transthoracic ultrasound image analysis for diffuse lung diseases

TULLY - Wearable device for emotion monitoring and control for children diagnosed with ADHD (Attention-Deficit/Hyperactivity Disorder)

HEAL4LIV - Innovative robotic system for cancer treatment

Improvements of an existing 3D freehand ultrasound periodontal scanner prototype using bidimensional neural networks driven segmentation techniques



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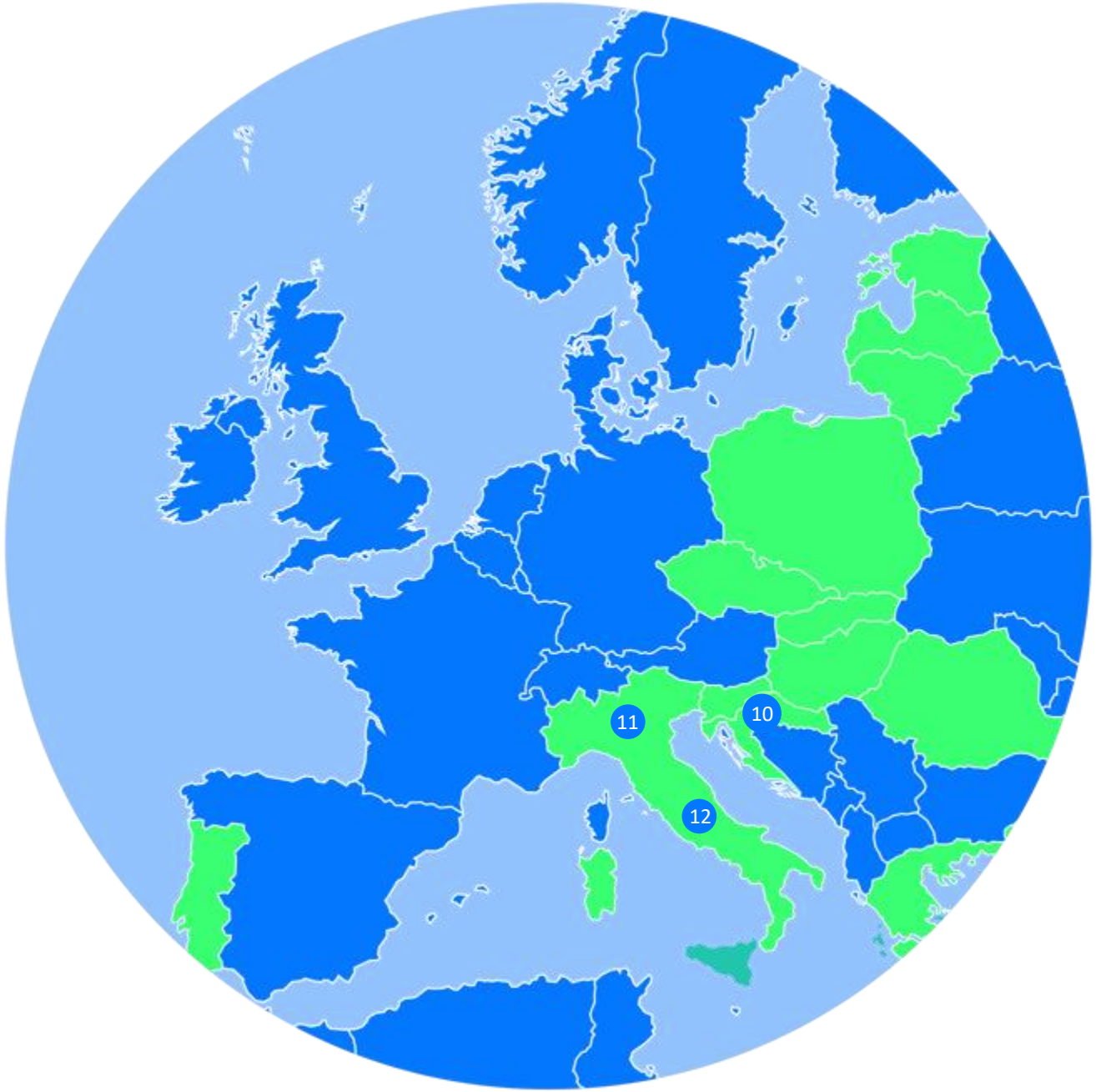
10. CROATIA

3D Virtual Navigation which integrates high resolution stereo depth camera with medical imaging systems with ‘in the air’ real control of surgeon’s hands

11-12. ITALY

Big Data Software Services for Decision Support in Precision Medicine

FDG Dosimeter



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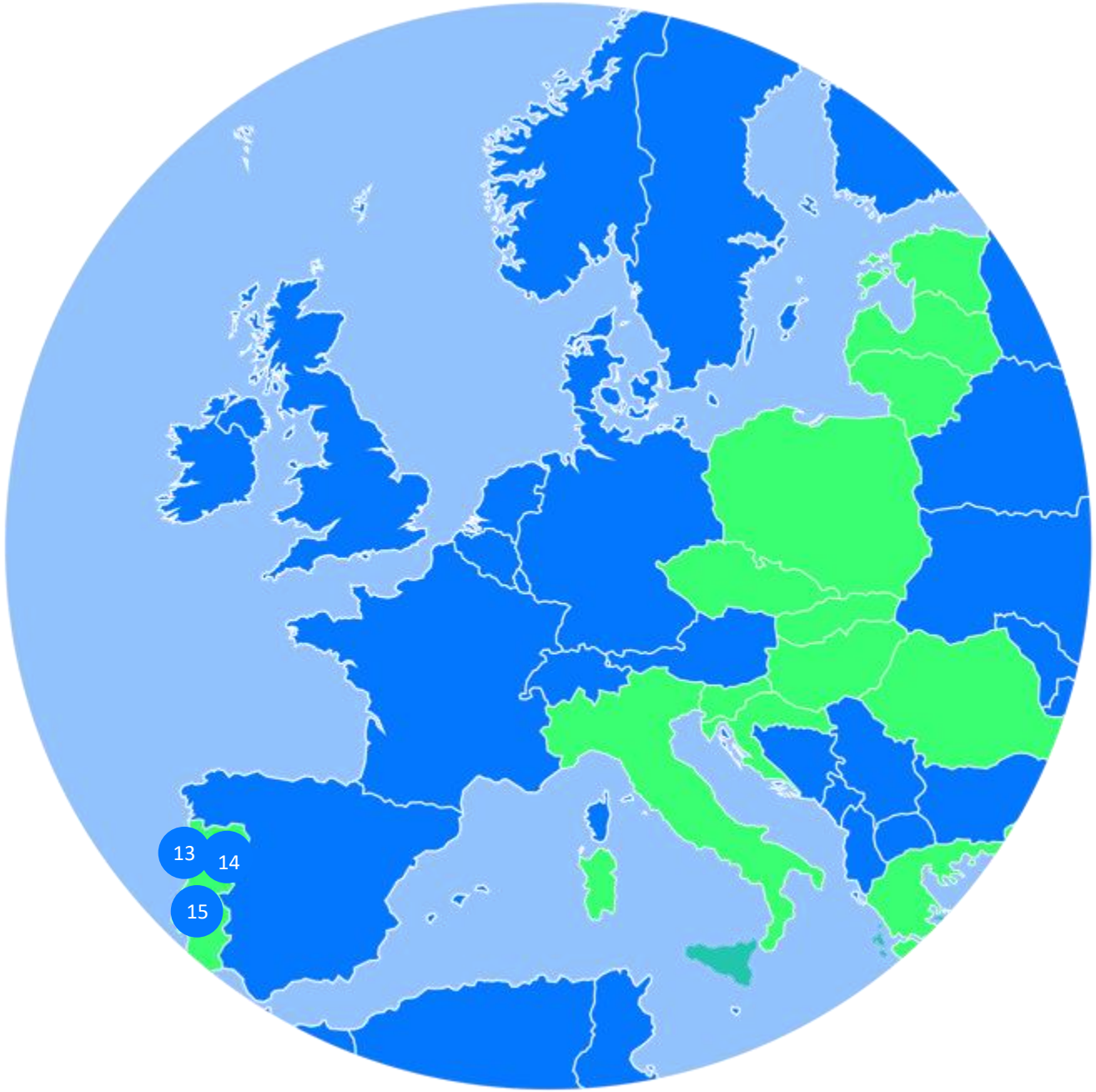
13-14-15. PORTUGAL

Libra - digital platform for promoting and sustaining healthy behaviours in Obesity

FRADE - Pervasive platform for fall detection, fall risk assessment and prevention

Adherence to hypertension treatment and blood pressure self-monitoring using embedded smartphone camera and advanced image processing



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AI driven IP intelligence engine for early stage drug discovery

Problem:

- Today, new drug development in average costs $2.6 billion and takes 10-14 years from component discovery until drug approval for market according to a recent study by Tufts Center for the Study of Drug Development. But, for example, the global health emergency over the spread of the deadly new coronavirus, is proving to be a crucial real-life test case for industry to aim dramatically reduce the time it takes to create new vaccines and drugs to combat emerging pandemics. While Artificial intelligence (AI) technologies help to identify thousands of new molecules that could be turned into potential medicines, it`s crucial to quickly establish novelty of most promising candidates.

Solution:

- This AI engine combines both words and chemical structures in a semantic search. The input of the chemical structure can be a substructure.
- This invention allows the user to spot the information they are looking for within 20% of the time required with current technologies. As a way of example, in a scenario where 100 documents are retrieved after a search query including a substructure and word terms, the user would have to invest 50 hours to analyse the relevance of them in regards to the query (0.5 h per document, assuming most advanced technology, PatentPak from Chemical Abstract; PatentPak locates the structures, but the semantic relationship with the other word terms have to be done manually).
- With this invention, the relationships are automatically detected and shown, documents ranked accordingly, and user would invest 8 h in the visual inspection (5 min per document).

RĪGA STRADIŅŠ UNIVERSITY

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Partners of project:

Semantic Intelligence LLC. • EIT Health Hub: Riga Stradins University • University of Latvia (UL) Faculty of Chemistry (FC), Latvia

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Patches for psoriasis treatment

Problem:

- Psoriasis is a long-lasting autoimmune skin disease. People should treat it constantly (all their life). Current treatment methods are not comfortable, inefficient and time-consuming. Due to that, more than 79% patients do not like their current treatment methods.

Solution:

- The potential solution is devices, which look like flexible, different size patches with integrated UVB LED's. This innovation solves 2 main problems: enables patients to have treatment at home and makes this treatment much more comfortable, compared with current methods. A video was created, which shows how the product works and 121 patients were asked to evaluate that solution. 89% of respondents said that this innovation would solve their problem.
- The first MVP was also created, which is flexible and comes in different sizes. After the pilot study with 6 patients, it was obtained that this product solves their problems (they do not need to go to the hospital, where they usually have UV therapy and the treatment method is more comfortable compared with existing methods).
- With these patches, people will be able to have treatment anywhere (for example at home, at work, in a car, etc.), avoid unnecessary UV rays and treat several damaged skin places at one time. This solution gives the opportunity to shift psoriasis treatment from hospital to home. Patches come in different sizes (depends on wound size). In the beginning, 3 different size of patches will be produced. The case is flexible (made from silicon to fit the damaged skin place), with integrated UVB LEDs. On the top, there are rechargeable batteries, microchips, a small screen with some information (a timer, treatment function, light intensity), buttons and transistors.

LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

Partners of project:

MB „Emplastrum” • EIT Health Hub: Lithuanian University of Health Sciences • UAB "VAIZDUOTE„ • Vilnius University • UAB „IAM consultant”, North East Region, Lithuania

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HepaMATRIX : Active 3D cell culture system for primary hepatocytes

Problem:

- Drug effect on liver tissue is among the primary tests used in early phases of drug development and toxicological screening. Today, the hepatotoxicity is tested either on cell lines (in vitro) or experimental animals (> 10 million animals/year). In vitro cultured cells are rapidly losing their physiological properties (about 72 hours) resulting in poor correlation to results in human. New cell culture models – such as 3D cell culture are needed to solve this problem. However, state-of-the-art in vitro models are not mimicking cell-to-cell communication and does not replicate behaviour in humans. Therefore, there lack of proper models of liver tissue delivering relevant, high throughput and ethical preclinical drug testing is of high demand.

Solution:

- HepaMATRIX delivers solution for unmet clinical need - reliable models of liver tissue. Testing of novel drugs, prevention of toxic effects of drugs on liver, knowledge about molecule biotransformation and liver pathologies need reliable models of human hepatic tissues. Current solutions are not delivering any solution for long-term culture of human primary hepatocytes and still are dependent on cell lines (cancer cells) and animal models.
- InoCure delivers HepaMATRIX - a novel technology enabling culture of human primary hepatocytes in better environment. The idea is focused on delivering of ready-to-use artificial matrices (hardware - microplates with our HepaMATRIX membranes) for in vitro production of liver models used in drug development, toxicological screening, basic research of liver diseases and diagnostics of patients with liver diseases.

Partners of project:

InoCure s.r.o. • EIT Health Hub: DEX Innovation Centre, North East region, Czechia

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Strengthening intergenerational playing cards

Problem:

- There is a very evident need on the market for adapted strengthening cognitive tools (games and toys) for elderly living in institutional care or at home - life span is being extended, elderly are facing cognitive decline and the onset of dementia is increasing.
- Currently, toys that are not properly adapted for the elderly (content, design, ergonomics, size) are used in the nursing homes. At the same time, there are no products that connect the youngest and oldest population. Intergenerational Strengthening Playing Cards are tailored for both, elderly and children, and for both generations to play together.

Solution:

- The solution is the development of strengthening intergenerational playing cards that will enhance cognitive and other skills and deepen interpersonal relationships between children and the elderly through play. Content of the cards & adaptation to specific needs:
    - three categories of tasks (associations, questions, mindfulness) facilitate the exchange of intergenerational knowledge and experience and relax
    - tasks enhance cognitive and sensorimotor abilities
    - gamification of the tasks will be applied
    - usage of many pictorial materials (realistic illustrations, photos) greatly increases the efficiency of playing and make it easier to retrieve long-term memories that are preserved the longest (dementia, cognitive decline)
    - larger cards & simple rules.

LJUBLJANSKI UNIVERZITETNI INKUBATOR

Partners of project:

Gen Studio • Damjana Pangerčič s.p. • EIT Health Hub: Ljubljana University Incubator, Western Slovenia Region, Slovenia

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Remote therapy management in chronic heart failure patients

Problem:

- Chronic Heart failure (CHF) is an increasingly common clinical syndrome associated with high morbidity and mortality. With a rising prevalence of over 45 million people worldwide it represents a major public health issue due to poor outcomes (50 % mortality rate at 5 years), high utilization of healthcare resources (12% of all outpatient visits and 8% of all hospital admissions) and prohibitive expenses (2% of the overall healthcare budget). The unmet need of adequate management of CHF patients after hospital discharge initiated the development of various telemonitoring systems for continuous control of these patients, the main goal being optimal medical management and early recognition of disease deterioration in this patient cohort.
- Presently there is no platform that would adequately address this unmet need. This current CHF solution bases on remote monitoring of the patients' vital signs (blood pressure, heart rate, ECG, weight and steps) which they measure at home using a dedicated set of sensors paired to a tablet. This data is then automatically transferred to a hospital server and reviewed by a heart failure staff. Medical management is adapted manually by medical staff according to the measured vital signs.

Solution:

- The value proposition is integrated, customizable, patient-centric solution to efficiently manage CHF patients using a telemonitoring platform, which is based on mature and adaptive technology and enhanced by algorithms which enable automated management of medical therapy and automated recognition of CHF worsening.

LJUBLJANSKI UNIVERZITETNI INKUBATOR

eit Health

Partners of project:

AdriaData • EIT Health Hub: Ljubljana University Incubator, Western Slovenia Region, Slovenia

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Diagnosis and follow-up system based on AI algorithms and transthoracic ultrasound image analysis for diffuse lung diseases

Problem:

- Pulmonary interstitial disorders are an extremely large and frequent category of lung pathology, with significant mortality, in both acute and chronic-progressive types with pulmonary fibrosis. Congestive heart failure with acute decompensation is another common condition, associated with lung interstitial fluid accumulation. There is an unmet need for a sensitive, inexpensive and non-invasive method of diagnosis and monitoring, to improve diagnostic techniques that can be used both for primary care units, for rapid diagnosis, as well as for early and remote monitoring of these patients, without exposing them to methods based on ionizing radiation like high resolution computed tomography (HRCT)- used as standard in these cases.

Solution:

- Transthoracic ultrasound (TUS) examination represents a viable alternative to evaluate patients with lung interstitial damage proven in multiple published studies. Acute pulmonary edema, fluid filled lung, deposition of conjunctive tissue, pulmonary fibrosis and even heart failure can be diagnosed by evaluating the elements of lung reverberation artifacts (B-lines) and pleural line morphology in a lung TUS standardized examination. The proposal is the use of a (TUS) based application for diffuse lung diseases diagnosis and follow-up, based on lung B-lines artifacts and pleural irregularities evaluation through image analysis and artificial intelligence algorithms which is noninvasive, cheap, accessible and radiation free diagnosis method.

FRESHBLOOD

eit Health

Partners of project:

EIT Health Hub: Freshblood HealthTech Community • Technical University of Cluj-Napoca, North West Region, Romania

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TULLY - Wearable device for emotion monitoring and control for children diagnosed with ADHD (Attention-Deficit/Hyperactivity Disorder)

Problem:

- ADHD's patterns of inattention and impulsivity interfere with social functioning and children's development. Hyperactivity manifests itself during school by hasty actions and class interruptions, and leads to children being marginalized. They want to get their behaviour under control, which is easy once they can recognize their emotions and identify when an active intervention is required, but this can take years without the input of an external observer. An additional problem comes from lack of reliable data in therapy. Psychologists have only second-hand information on children's behaviour, have to focus on avoiding negative evolution, and have limited visibility on the medium term efficiency of the therapeutic process.
- Over 8 million children between 4 and 17 years old are diagnosed with ADHD in the US and Europe and approximately 25% of them are under counselling or therapy.

Solution:

- Tully is a wearable device that helps children monitor their mental and emotional strain. It tracks several physiological indicators (HR, HRV, SpO2, GSR), which, together with temperature and movement/position indicators, combine to define an overall level of stress and agitation. A proprietary algorithm interprets the sensory input, detects the increase in agitation and forecasts imminent emotional flares. The device alerts the child through LEDs and vibrations, realizing the first step of the intervention, distraction, and, using biofeedback, guides him through a predetermined set of mental exercises provided by his therapist or by the project team. The data is further processed and made available to therapists through a secure encrypted platform.

FRESHBLOOD

eit Health

Partners of project:

SC STRESSLESS SRL • EIT Health Hub: Freshblood HealthTech Community • Faculty of Psychology, University of Babes Bolyai, North West Region, Romania

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HEAL4LIV - Innovative robotic system for cancer treatment

Problem:

- The large number of hepatocellular carcinoma (HCC) discovered in late stages (according to Barcelon-Clinic Liver Cancer staging system), usually beyond B stage, which deems them as unresectable. Interventional percutaneous therapy provides promising results, but they lack the technology for safe and accurate application. Previous analysis and discussions with the medical doctors led towards minimally invasive interventions, both with curative and palliative purposes. Current solutions don't provide enough accuracy for an efficient percutaneous treatment of HCC.

Solution:

- HEAL4LIV proposes the development of an innovative, modular robotic system for HCC treatment through percutaneous HDR brachytherapy, RFA or targeted intratumoral chemotherapy. HEAL4LIV robotic system enables the application of these three interventional treatment solutions through using a commercial robotic system, KUKA-LBR iiwa, medically certified with three corresponding interchangeable medical instruments, suitable for manipulating commercially available RFA, HDR-BT, IDR needles. The real-time visual control of the needle's trajectories is achieved either using computer tomography (CT) or ultrasound imaging avoiding needle deviation/deflection during the procedure.

FRESHBLOOD

Partners of project:

HEAL4LIV • EIT Health Hub: INIT & Freshblood HealthTech Association • Technical University of Cluj-Napoca through CESTER, academic partner • The Regional Institute of Gastroenterology Hepatology Prof. Dr. "Octavian Fodor • SELECT IT SERV SRL, North West Region, Romania

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Improvements of an existing 3D freehand ultrasound periodontal scanner prototype using bidimensional neural networks driven segmentation techniques

Problem:

- World global incidence of the periodontal disease is 40% of the population. Existing diagnosis solutions can damage tissue via mechanical or radiation interference. Periodontal pocket depth measurements (periodontal probing) is operator dependent, invasive and having low reproducibility. There is no imaging method for the moment dedicated to Gingival thickness measurements and 3D modelling of the gingival tissue. Alveolar bone defects diagnosis and 3D modelling of alveolar bone needed in periodontal and orthodontic diagnosis are visualized using ionizing radiation making impossible the monitoring of the patients every time when it is needed by the clinicians.

Solution:

- A freehand 3D ultrasound scanner for hard tissue surfaces and soft tissue 3D modelling in head and neck region with immediate application in diagnosis of periodontal disease using bi-dimensional neural networks driven segmentation techniques. Actual investigation time is about 30 minutes for a complete periodontal probing chart. A 3D ultrasound scan will take 10 minutes. There will be no interference with the tissue resulting a non invasive imaging method. Comparing with periodontal probing will have better reproductability (due to the digital segmentation methods implemented) and because of non-invasiveness in comparison with the CBCT will be appropriate for long term monitoring (due to stored scan results history) of the periodontal disease. Certain bone defects non-identifiable on the CBCT will be visible on the high frequency ultrasound reconstructions because of the better resolution (due to the devices used for the scan system).

FRESHBLOOD

Partners of project:

Chifor Research SRL • EIT Health Hub: Asociatia INIT & FreshBlood HealthTech • Technical University of Cluj-Napoca, North West Region, Romania

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3D Virtual Navigation which integrates high resolution stereo depth camera with medical imaging systems with ‘in the air’ real control of surgeon’s hands

Problem:

- There are many new, innovative approaches and techniques, as technological advances in modern surgery, but nowadays there is a growing need for surgery in-the-air. This newest approach as a contactless surgery and as a part of adopting augmented and virtual reality for the next generation of information technology and medical healthcare. The proposal is aiming to resolve the problem of standard surgical parameters in the fly gesture-controlled incisionless surgical interventions.

Solution:

- The team plans to design original open source, operation system agnostic, approved for medical use, independent of HW contactless interface as a plug-in application for DICOM-viewer platform using a hardware sensor device controller that supports hand/finger motions as input, with no hand contact. Motion tracking enables more precise virtual movement, rotation, cutting, spatial locking and measuring as well as slicing through datasets. In order to provide the most immersive experience, a camera is used for depth and motion tracking that has active stereo depth resolution with precise shutter 3 sensors for depth streaming with a range up to 2-3 meters which is important in the OR and which gives a sense of freedom to the surgeon during the surgery.

Sveučilište u Zagrebu
University of Zagreb

Partners of project:

RIT Croatia, Zagreb campus • EIT Health Hub: University of Zagreb • Bitmedix • Continental Croatia Region, Croatia

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Big Data Software Services for Decision Support in Precision Medicine

Problem:

- Success in Precision Medicine depends on accessing high-quality genetic and molecular data that, in conjunction to comprehensive clinical data, can lead to more effective therapies. Although omics data are available on public databases, doctors are not yet able to extract useful value from them, due to their high amount and heterogeneity. From such a scenario emerges the need for innovative solutions based on Big Data and Artificial Intelligence technologies. Similar products have started to be proposed, with very high revenue. However they are mainly designed for specific diseases (e.g., tumors) and offer a limited set of services, usually including automatic processing of medical reports but not the analysis of genetic/molecular profiles.

Solution:

- PHOENIX eHealth Platform, a SaaS platform for Big Data Analytics provides decision support services in the context of Precision Medicine. PHOENIX aims to fill the current gap between the amount of medical and biological data currently available and the value that can be extracted from them. A prototype based on Apache Spark has already been developed which implements the core component of the system (data integration) and it is currently running on an Amazon Ec2 instance. The future steps will consist of the re-engineering of the entire platform, according to the dictates of Microservices Architecture and Domain Driven Design. PHOENIX will offer also a large set of advanced Network Analysis services based on AI techniques.

Partners of project:

Kazaam Lab srl • EIT Health Hub: Conzorcio Arca, Sicily • University Sapienza of Rome, Italy

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FGD Dosimeter - A fast, precise, repeatable and cost-effective dosimeter to reduce response times and inaccuracies in the control technique of cancer therapies carried out with radiation

Problem:

- Radiology has switched from analogy technology to digital technology. Improved precision of technological innovation has decreased the clinical adverse events albeit with the questionable accuracy of dose delivered, indeed the control dosimeters have remained analog (film). The treatment control technique carried out with passive dosimeters, is no longer adequate because of not being fast and accurate enough and because of being affected by human error. Indeed can take tens of minutes or hours of time, and the result may depend on proper storage, calibration or reading thereby making it difficult for either the radiologist or the technologist responsible for data acquisition to perform work, as well as increasing the risk of unwanted clinical adverse events.

Solution:

- This solution is an innovative electronic passive dosimeter based on a CMOS Floating Gate sensor monolithically implemented on a single chip together with the reading circuits. The novelty of the dosimeter is precisely the fully integrated and miniaturized solution that goes from the sensor to the digital word output and can therefore be read at any time simply by placing it on the charging base. This dosimeter, thanks to its small size, can be easily placed and exposed to the radiation field, can be read instantly without interpretation errors, provide an integrated dose measurement, integrates the qualities of passive and active dosimeters and is reusable for a reduction in operating costs.

Partners of project:

BlackCat Beyond srl • EIT Health Hub: Conzorcio Arca, Sicily • Dipartimento di Ingeneria, Italy

EIT Health is supported by the EIT, a body of the European Union

Libra - digital platform for promoting and sustaining healthy behaviours in Obesity

Problem:

- Obesity reached epidemic proportions, affecting more than 650M people, and second only to smoking as the most significant cause of premature death. In Europe, waiting lists for surgery are ballooning. Digital solutions for supporting these patients and their doctors throughout the disease pathway are missing. It is difficult to engage patients into adopting/maintaining healthy lifestyles (eating and sedentary behaviours are key drivers of weight regain), remote access/intervention on health status (e.g early weight regain predicts complications), and long-term monitoring of real-world outcomes (e.g 5 years after surgery, proportion of patients with negative outcomes is sizeable – 42 and 33 % decline in physical and mental quality of life)

Solution:

- Libra is a digital social platform for making people with obesity healthier. Personalised digital peer-to-peer coaching is used, data is collected from personal devices and remote communication is managed with health professionals. Seamless remote professional follow-up is delivered (access to patient-reported/devices data, communication channels, AI generated alerts) together with social environment functionalities (e.g bulletin boards, discussion forums, chat; suggesting peers with same interests, occupation, geographical area; and gamification techniques for peer-support, such as point systems for patients sharing their achievements, milestones, goals). Libra builds on ongoing work of Promptly in other areas such as diabetes (PROEMPOWER) or pregnancy (INDEMAND)

U.PORTO

Partners of project:

Promptly Health • EIT Health Hub: Universidade do Porto, North Portugal Region, Portugal

EIT Health is supported by the EIT, a body of the European Union

Pervasive platform for fall detection, fall risk assessment and prevention

Problem:

- The worldwide population aged over 65 is rapidly growing and the consequences are simultaneously social, health-related and economic. The process of aging impacts mobility, muscle strength and balance control which contributes to the increase of falls occurrence in this population. Currently, there are a variety of solutions to address only specific stages of the fall management lifecycle: assessing multiple fall risk factors, detecting falls automatically, and providing strategies for falls prevention that focus on attenuating specific fall risk factors. However, most technological solutions do not allow to close the falls management loop by simultaneously addressing fall detection (FD), fall risk assessment (FRA) and fall prevention (FP)
- Among the elderly population, falls are one of the major causes of death and injury. More than 30% of people over 65 fall once per year and the prevalence increases for people above 80.

Solution:

- This solution is composed of a bundle of components (wearable sensor, desktop application, Android application and 3 backend servers with web interface) to perform FD, FRA, and FP. The elder will use the wearable sensor to monitor falls and to provide a continuous estimation of fall risk, based on movement analysis. It sends an alarm to the backend server and an SMS to a caregiver whenever a fall is detected (if outside, the location will also be sent). The wearable device will also be used to monitor the elder's movements and communicate with the desktop and Android application while he/she performs FRA tests and FP exergames. All the monitored data is stored in the backend server and can be accessed through its web interface, by a caregiver.

U.PORTO

eit Health

Partners of project:

Associação Fraunhofer Portugal Research • EIT Health Hub: Universidade do Porto • Escola Superior de Enfermagem do Porto (ESEP), North Portugal Region, Portugal

EIT Health is supported by the EIT, a body of the European Union

Adherence to hypertension treatment and blood pressure self-monitoring with embedded smartphone camera and advanced image processing

Problem:

- Hypertension is a very prevalent disease worldwide, a major source of burden of disease and a risk factor for other cardiovascular diseases. Control rates of hypertensive patients are very insufficient due to multiple factors, one of them being the lack of adherence to treatment. Adherence is difficult to measure in daily practice because existing methods are either of poor quality or too expensive. Also, patients are encouraged to perform self-measurement of blood pressure. mHealth solutions have a very high potential to be used to assess the problem of adherence and facilitate selfmonitoring of blood pressure. Several apps already exist to support the management of hypertension but none objectively measures adherence to therapy.

Solution:

- This solution aims to develop and evaluate a smartphone app to support the management of hypertension, including detection of adherence to treatment and of self-monitoring blood pressure (BP) values. The problem of drug adherence in hypertension will be addressed in an innovative manner: patients will be asked to photograph the blisters with their smartphone camera and the app will recognize empty cavities with image processing techniques. Moreover, the app will ask patients to photograph the screen of their automated devices and the app will identify and capture BP values. Customizable alerts will exist for both activities; the app will include educational material regarding BP measurement and the importance of adherence.

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eit Health

Partners of project:

CINTESIS • EIT Health Hub: Universidade do Porto • Center for Health Technology and Services Research • Faculty of Medicine, University of Porto • MEDIDA, North Portugal Region, Portugal

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More information about EIT Health RIS

EIT Health is supported by the EIT,
a body of the European Union

EIT Health Regional Innovation Scheme

EIT Health Regional Innovation Scheme (EIT Health RIS) is a programme created by the European Institute of Innovation and Technology (EIT) in aim to increase the innovation capacity in areas of Europe not directly benefitting from the activities of EIT Health.

This unique programme is designed to close the gap between regions that are leaders in healthcare innovation and 14 areas that have more moderate innovation (according to the European Innovation Scoreboard).

The goal is to help citizens in less developed European countries enjoy the benefits of innovation – and have access to new products and services supporting active ageing and healthy living. Additionally, its aim is to match healthcare innovators from the EIT Health network with the talent pool and innovative organisations from the EIT Health Hubs regions.

The programme is coordinated by EIT Health InnoStars.

EIT Health Regional Innovation Scheme

How are the EIT Health Hubs supporting development of the local innovation ecosystems?

Developing regional innovation communities

Scouting for innovators

Building innovation consortia

Promoting EIT Health Education, Acceleration and Innovation programmes in regions

Assessing the development level of regional ecosystem and designing long-term strategies

Engaging with local authorities and leaders

Joining pan-regional collaborations

Learning from more advanced players from the EIT Health network

Sharing lessons learnt & best practices

EIT Health Regional Innovation Scheme

14 HUBS in **13** REGIONS

2019-2020

27
new healthcare consortia supported

900
innovators equipped in new skills

50
accelerated start-ups

Over 100
workshops and trainings in regions

https://eithealth.eu/in-your-region/ris/

EDUCATION ACCELERATION INNOVATION

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